AMENDMENTS TO THE CLAIMS

1. (Withdrawn) A method for providing a compact layout of connected nodes, comprising:

receiving an input of a topology of connected nodes; and

arranging the topology of connected nodes into a compact layout wherein the difference between the width and the height of the compact layout is minimized.

2. (Withdrawn) The method of claim 1, wherein receiving an input of a topology of connected nodes comprises receiving data representing a hierarchical configuration of a plurality of nodes connected by a plurality of edges.

3. (Withdrawn) The method of claim 1, wherein receiving an input of a topology of connected nodes comprises receiving data representing an arbitrary configuration of a plurality of nodes connected by a plurality of edges.

4. (Withdrawn) The method of claim 1, wherein arranging the topology of connected nodes into a compact layout comprises:

recursively arranging portions of the topology of connected nodes into a plurality of compact sub-layouts each having a width and a height whose difference is minimized; and

arranging the plurality of compact sub-layouts into an overall compact layout having a width and a height whose difference is minimized.

5. (Withdrawn) The method of claim 1, wherein arranging the topology of connected nodes into a compact layout comprises:

determining a preferred width for a compact layout of the topology of connected nodes; and

arranging the topology of connected nodes into the compact layout wherein the difference between the actual width of the compact layout and the preferred width of the compact layout is minimized.

6. (Currently Amended) A computer-implemented method for providing a compact layout of connected nodes, comprising:

searching for a deepest non-leaf node along an unsearched path of edges from ~~the~~ a root node of a hierarchical configuration of connected nodes, wherein the configuration includes an edge between each pair of connected nodes;

when a deepest non-leaf node is found along the unsearched path, positioning all descendant nodes of the deepest non-leaf node into a first compact layout of connected nodes, ~~if the deepest non-leaf node is located along the unsearched path,~~ wherein the difference between the width and the height of the first compact layout is minimized;

determining whether the deepest non-leaf node has a non-leaf sibling node;

when the deepest non-leaf node has a non-leaf sibling node, positioning all descendant nodes of ~~a~~ the non-leaf sibling node of the deepest non-leaf node into a second compact layout of connected nodes, ~~if the deepest non-leaf node has the non-leaf sibling node,~~ wherein the difference between the width and the height of the second compact layout is minimized;

determining whether a parent node of the deepest non-leaf node is the root node;

when the parent node of the deepest non-leaf node is not the root node, positioning all descendant nodes of ~~a~~ the parent node of the deepest non-leaf node, including a sub-tree resulting from the positioning all descendant nodes of the deepest non-leaf node, into a third compact layout of connected nodes, ~~if the parent node of the deepest non-leaf node is not the root node,~~ wherein the difference between the width and the height of the third compact layout is minimized;

repeating, for each path of edges from the root node, the foregoing steps of (a) searching for a deepest non-leaf node, (b) positioning all descendant nodes of the deepest non-leaf node, (c) positioning all descendant nodes of a non-leaf sibling node, and (d) positioning all descendant nodes of a parent node;

positioning all descendant nodes of the root node, including all child sub-trees of the root node resulting from the repeating, into a fourth compact layout of connected nodes, wherein the difference between the width and the height of the fourth compact layout is minimized; and

rendering the positioned nodes of the fourth compact layout on an output device, wherein rendering includes depicting each of the positioned nodes and the edge between each pair of connected nodes.

7. (Currently Amended) The computer-implemented method of claim 6, wherein positioning all descendant nodes of the deepest non-leaf node into ~~a~~ the first compact layout comprises:

calculating a total area of the all descendant nodes of the deepest non-leaf node;

calculating a preferred width of the first compact layout as the square root of the total area; and

positioning the all descendant nodes of the deepest non-leaf node into the first compact layout wherein the difference between the actual width and the preferred width of the first compact layout is minimized.

8. (Currently Amended) The computer-implemented method of claim 6, wherein positioning all descendant nodes of ~~a~~ the non-leaf sibling node of the deepest non-leaf node into ~~a~~ the second compact layout comprises:

calculating a total area of the all descendant nodes of the non-leaf sibling node;

calculating a preferred width of the first compact layout as the square root of the total area; and

positioning the all descendant nodes of the non-leaf sibling node into the second compact layout wherein the difference between the actual width and the preferred width of the first compact layout is minimized.

9. (Currently Amended) The computer-implemented method of claim 6, wherein positioning all descendant nodes of ~~a~~ the parent node of the deepest non-leaf node into ~~a~~ the third compact layout comprises:

calculating a total area of all descendant nodes of the parent node, including the area of the sub-tree resulting from the positioning all descendant nodes of the deepest non-leaf node;

calculating a preferred width of the third compact layout as the square root of the total area; and

positioning the all descendant nodes of the parent node into the third compact layout wherein the difference between the actual width and the preferred width of the third compact layout is minimized.

10. (Currently Amended) The computer-implemented method of claim 6, wherein positioning all descendant nodes of the root node into ~~a~~ the fourth compact layout comprises:

calculating a total area of all descendant nodes of the root node, including the area of each child sub-tree of the root node resulting from the repeating;

calculating a preferred width of the fourth compact layout as the square root of the total area; and

positioning the all descendant nodes of the root node into the fourth compact layout wherein the difference between the actual width and the preferred width of the fourth compact layout is minimized.

11. (Withdrawn) A computer system for providing a compact layout of connected nodes, comprising:

a processing unit;

a memory in communication with the processing unit; and

a computer program stored in the memory that provides instructions to the processing unit, wherein the processing unit is responsive to the instructions, operable for:

receiving an input of a topology of connected nodes;

recursively arranging portions of the topology of connected nodes into a plurality of compact sub-layouts each having a width and a height whose difference is minimized; and

arranging the plurality of compact sub-layouts into an overall compact layout having a width and a height whose difference is minimized.

12. (Withdrawn) The computer system of claim 11, wherein the processing unit, responsive to the instructions, is further operable for:

receiving a selection of a layout format for the plurality of compact sub-layouts and the overall compact layout, wherein the layout format determines the routing of the connectors to the connected nodes; and

receiving a selection of a preferred spacing for the connected nodes and the connectors within the plurality of compact sub-layouts and the overall compact layout.

13. (Withdrawn) The computer system of claim 11, wherein the processing unit, responsive to the instructions, is operable for receiving an input of a topology of connected nodes by:

reading a data structure representing a hierarchical configuration of a plurality of nodes connected by a plurality of edges; and

organizing the hierarchical configuration into a tree layout format for further processing.

14. (Withdrawn) The computer system of claim 11, wherein the processing unit, responsive to the instructions, is operable for receiving an input of a topology of connected nodes by:

reading a graph of data representing an arbitrary configuration of a plurality of nodes connected by a plurality of edges; and

organizing the arbitrary configuration into a tree layout format for further processing.

15. (Withdrawn) The computer system of claim 11, wherein the processing unit, responsive to the instructions, is operable for recursively arranging portions of the topology of connected nodes into a plurality of compact sub-layouts by:

determining a preferred width of the compact sub-layout for each portion based on the square root of the total area of the connected nodes for the each portion; and

arranging the connected nodes of the each portion into a compact sub-layout wherein the difference between the actual width and the preferred width of the compact sub-layout is minimized.

16. (Withdrawn) The computer system of claim 11, wherein the processing unit, responsive to the instructions, is operable for arranging the plurality of compact sub-layouts into an overall compact layout by:

determining a preferred width of the compact layout based on the square root of the total area of the plurality of compact sub-layouts; and

arranging the plurality of compact sub-layouts into a compact layout wherein the difference between the actual width and the preferred width of the compact layout is minimized.

17. (Currently Amended) A computer-readable storage medium having computer-executable instructions for providing a compact layout of connected nodes, the instructions implementing a method comprising:

receiving an input of data representing a hierarchical configuration of connected nodes, wherein the configuration includes a branch between each pair of connected nodes;

locating a deepest internal node along an unsearched path of branches from ~~the~~ a root node of the hierarchical configuration of connected nodes;

arranging all descendant nodes of the deepest internal node into a first compact layout of connected nodes, wherein the ratio between the width and the height of the first compact layout is optimized toward a first preferred aspect ratio;

arranging all descendant nodes of a parent node of the deepest internal node, including a sub-tree formed by the deepest internal node and the first compact layout, into a second compact layout of connected nodes, wherein the ratio between the width and the height of the second compact layout is optimized toward a second preferred aspect ratio; ~~and~~

arranging all descendant nodes of the root node, including all resultant child sub-trees of the root node, into a third compact layout of connected nodes wherein the ratio between the width and the height of the third compact layout is optimized toward a third preferred aspect ratio; and

rendering the arranged nodes of the third compact layout on an output device, wherein rendering includes depicting each of the arranged nodes and the branch between each pair of connected nodes.

18. (Currently Amended) The computer-readable medium of claim 17, further comprising:

receiving a selection of the first, second, and third preferred aspect ratios for the ratio of the width to the height of the first, second, and third compact layouts, respectively;

receiving a selection of a layout format for the first, second, and third compact layouts, wherein the layout format determines ~~the~~ a routing of the branches to the connected nodes; and

receiving a selection of a preferred spacing for the connected nodes and the branches within the first, second, and third compact layouts.

19. (Currently Amended) The computer-readable medium of claim 17, wherein the logic for arranging all descendant nodes of the deepest internal node into ~~a~~ the first compact layout comprises:

calculating a total area of the all descendant nodes;

calculating a preferred width of the first compact layout as the square root of the total area; and

arranging the all descendant nodes into the first compact layout wherein the difference between the actual width and the preferred width of the first compact layout is minimized.

20. (Currently Amended) The computer-readable medium of claim 17, wherein the logic for arranging all descendant nodes of ~~a~~ the parent node of the deepest internal node comprises:

calculating a total area of all descendant nodes of the parent node, including the area of the sub-tree formed by the deepest internal node and the first compact layout;

calculating a preferred width of the second compact layout as the square root of the total area; and

arranging the all descendant nodes of the parent node into the second compact layout wherein the difference between the actual width and the preferred width of the second compact layout is minimized.

21. (Previously Presented) The computer-readable medium of claim 17, wherein the logic for arranging all descendant nodes of the root node comprises:

calculating a total area of all descendant nodes of the root node, including the area of each resultant child sub-tree of the root node;

calculating a preferred width of the third compact layout as the square root of the total area; and

arranging the all descendant nodes of the root node into the third compact layout wherein the difference between the actual width and the preferred width of the third compact layout is minimized.